

The larvae of ground-beetles are usually elongated in form and of nearly equal breadth throughout. They may be known by their tarsi ending in two claws, by the protruding sharp calliper-like mandibles, and by the body ending in a tube-like part of varying length and in two lateral conical bristle-like appendages.

Like the adults the larvae prey upon a great variety of insects, chiefly in the larval form, but they have some cruel enemies in the insect-world. If the little ants find them out life is a severe struggle. Large larvae are frequently seen quite helpless in the "hands" of three or four small ants. If you happen upon such conflicts make note of them.

LAND-SNAILS.

The land-snail, *Helix*, is shown in Figure 4. It lives in moist protected places during the day, and comes out to feed at night, and is frequently found wandering about on damp cloudy days.

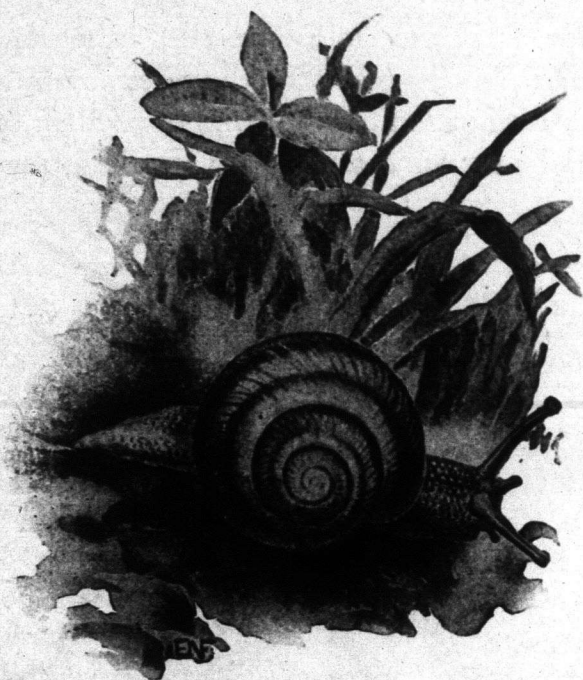


Fig. 4. Land-Snails, *Helix*. Natural Size.

Find a specimen of *Helix*, and show it to your classes, and ask them to search for other specimens. They are widely distributed and should be found in every locality of the Maritime Provinces. The writer has found them very abundant in places near the coast.

Examine specimens kept in cages. Note the dark colored bands on the shell. How many are there? Are they equally plain on all specimens? Do other objects in nature show variations? Give specific instances in both plants and animals.

Touch a specimen as it moves along, and note

how it contracts its whole body. Of what benefit is this power to snails? Compare this kind of protection with that that we have observed in other animals. The shell is formed by the animal itself, and remains attached to its body throughout life. Empty shells are frequently found, but must be regarded as the remains of dead snails. Test such empty shells with a drop of hydrochloric acid, and note the reaction. What have you learned about their composition? Also test clamshells, oyster shells, and the dry bones of the chick, turkey and other animals, with the same acid. How do they compare in composition with snail shells? Compare snail shells with the skeletons of higher animals as to composition, position in the body, use, etc.

What is the shape of the body when expanded? Note the two pairs of horns or tentacles at the anterior end of the body. The shorter tentacles are special organs of touch, and are used like the antennae of insects; the longer tentacles end in dark pigmented spots, eyes, and should be compared with the stalked-eyes of the lobster and crab. Touch one of them with a toothpick or pin and note the reaction. How do animals like the cat, dog, horse and cow protect their eyes?

The large pore in the right side partly beneath the edge of the shell opens and closes over a small hollow space in the body called the lung. This space is adapted for using the oxygen of the air. At the edge of the breathing pore is situated the anal opening.

The mouth is on the ventral side at the anterior end, and is provided with a wonderful little rasp-like tongue, called a radula, with which it "chews" its food. In some species of marine snails, such as the oyster-drill, the radula is fitted for boring holes through the hard shells of other snails, clams and oysters. Of what economic importance are such forms?

How does the snail, *Helix*, move from place to place? Note that the whole ventral surface of the body is used as a foot, and that a slime streak is left wherever it travels. Such animals are all grouped in a class called Stomach-footed Animals, Gastropoda or Gasteropoda. Name some other forms very much like snails that are Stomach-footed Animals.

In France a species of *Helix* is used as food, and we are fond of some of its near relatives, such as clams, scallops and oysters.